



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,736	02/18/2004	Chen Lung Kuo	08954.0014	2073
22852	7590	12/21/2006		
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER CHEN, WEN YING PATTY	
			ART UNIT	PAPER NUMBER
			2871	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/21/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/779,736

Applicant(s)

KUO, CHEN LUNG

Examiner

W. Patty Chen

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-24, 27-36, 38, 39, 41 and 42 is/are pending in the application.
- 4a) Of the above claim(s) 27-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-24, 33-36, 38, 39, 41 and 42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Amendment*

Applicant's Amendment filed Oct. 10, 2006 has been entered. Claims 41 and 42 are newly added and claims 25-26, 37 and 40 are cancelled per the Amendment file. Therefore, claims 21-24, 27-36, 38-39 and 41-42 are pending in the current application, however, claims 27-32 are withdrawn from consideration.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 21, 23, 33, 35, 38-39 and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (US 2002/0075443) in view of Sawasaki et al. (US 2001/0026347).

With respect to claims 21, 33 and 38-39 (Amended): Shimizu et al. disclose in Figure 6 a liquid crystal display panel, comprising:

- a first substrate (element 100B) having a plurality of first areas (region where element 1b is formed) and a plurality of second areas (region where element 1c is formed), wherein a surface of the first substrate has the same height in the first areas and in the second areas;

- a second substrate (element 100A) having a plurality of first areas (region where element 104 is formed) and a plurality of second areas (region wherein element 104 is not formed), wherein the first areas and the second areas are on a side of the second substrate facing the first substrate, and a surface of the second substrate is higher in the first areas than in the second areas, and the second areas of the second substrate correspond to the second areas of the first substrate;

- a liquid crystal layer (element 9) sandwiched between the first substrate and the second substrate;

- a plurality of first protrusions (element 1b) disposed on the first areas of the first substrate and substantially contacting the first areas of the second substrate for maintaining a first cell gap between the first and second substrates (Paragraph 0085); and

- a plurality of second protrusions (element 1c) disposed on the second areas of the first substrate, tops of the second protrusions being separated from the second areas of the second substrate by a predetermined distance (as shown in the figure) in such a manner that the second

protrusions contact the second areas of the second substrate when the liquid crystal display panel is subjected to an external force to maintain a second cell gap between the first and second substrates, the second cell gap being smaller than the first cell gap (Paragraph 0085).

Shimizu et al. failed to disclose that a plurality of third protrusions are disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer and that the first and second protrusions are made of a first material and the third protrusions are made of a second material, the first material being harder than the second material.

However, Sawasaki et al. disclose in Figure 48 a liquid crystal display device comprising a plurality of third protrusions (element 246a) in addition to a plurality of first protrusions and a plurality of second protrusions, disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer and Sawasaki et al. further disclose in Paragraphs 0227-0228 that the first and second protrusions are formed so to act as rigid supports for the substrates, therefore, are harder than the third protrusions.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Shimizu et al. wherein a plurality of third protrusions being disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer as taught by Sawasaki et al., since Sawasaki et al. teach that by forming a plurality of third protrusions helps in providing a multi-domain display device, thereby, obtaining good display quality (Paragraphs 0016-0017) and to form the first and second protrusions of a material harder than the third protrusion material, so as to provide reliable support for maintaining the cell gaps.

As to claims 23 and 35: Shimizu et al. further disclose in Paragraph 0085 that the first protrusions and the second protrusions have the same height.

As to claims 41 and 42 (New): Shimizu et al. further disclose in Figure 6 that the first substrate (element 100B) has a plurality of light-shielding matrices (element 3), the first and second protrusions (elements 1b and 1c) being disposed on the light-shielding matrices (more clearly shown in Figure 8).

Claims 22, 24, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (US 2002/0075443) and Sawasaki et al. (US 2001/0026347) in view of Miyachi et al. (US 6211937).

With respect to claims 22 and 34: Shimizu et al. and Sawasaki et al. disclose all of the limitations set forth in the previous claims and Shimizu et al. further disclose in Paragraph 0085 that the first substrate is a color filter substrate and the second substrate is a thin film transistor substrate; the liquid crystal display panel further comprising thin film transistor (TFT) devices on the second substrate.

Shimizu et al. fail to specifically disclose that the TFT devices are formed in the first areas of the second substrate wherein the first protrusions contact the TFT devices.

However, Miyachi et al. disclose in Figure 5 a liquid crystal display device comprising of TFT devices (element 1) wherein protrusions (element 5) are formed in locations contacting the TFT devices (Column 7, lines 55-56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Shimizu et al. and

Art Unit: 2871

Sawasaki et al. wherein the first protrusions are formed in contact with the TFT devices as taught by Miyachi et al., since Miyachi et al. teach that by forming the protrusions on the TFT devices minimizes the effect of lowering the aperture ratio thus preventing a degradation of the display quality (Column 8, lines 33-39).

As to claims 24 and 36: Miyachi et al. further disclose in Column 8 line 3 that the TFT devices have a thickness of 1.6 $\mu$ m, therefore, when the first protrusions are formed contacting the TFT devices, the distance between the second protrusions with respect to the second substrate will then be 1.6 $\mu$ m, which is in the range of 1.0 $\mu$ m to 2.0 $\mu$ m.

### ***Response to Arguments***

Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2871

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Patty Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

W. Patty Chen  
Examiner  
Art Unit 2871

WPC  
12/18/06

  
David Nelms  
Supervisory Patent Examiner  
Technology Center 2800